



The strategic role of principal management in enhancing teacher performance within rural madrasah settings

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ABSTRACT

Background: Teacher performance is a vital element in achieving educational quality, particularly within Islamic-based schools located in rural areas. The role of the principal's management is believed to be a strategic factor influencing the effectiveness of teacher performance; however, it has not been extensively examined quantitatively in the context of Islamic elementary schools in rural settings. **Methods:** This study employed a quantitative associative approach using a field survey method involving 23 teachers at MI Ma'arif NU 01 Dawuhan Wetan. Data collection techniques included observation, documentation, and questionnaires that were validated and tested for reliability. Data analysis was conducted using simple linear regression with SPSS to determine the significant influence of the principal's management (variable X) on teacher performance (variable Y). **Findings:** The analysis revealed that the principal's management has a positive and significant influence on teacher performance, with an R^2 value of 0.810, indicating that the principal's management can explain 81% of the variation in teacher performance. The significance value (Sig.) of 0.000 and the t-value of 9.452, which is greater than the t-table value (1.724), further support this conclusion. **Conclusion:** The principal's management has been proven to be a determining factor in improving teacher performance at MI Ma'arif NU 01 Dawuhan Wetan. The quality of planning, supervision, and leadership directly contributes to enhancing teachers' professionalism, responsibility, and productivity. **Novelty/Originality of this article:** This study provides empirical contributions to the field of Islamic education management by presenting quantitative evidence on the importance of school leadership in the context of madrasahs in rural areas. The findings may serve as a reference for developing management-based policies to improve the quality of education in Islamic elementary schools and similar institutions.

KEYWORDS: Islamic elementary schools; principal management; teacher performance.

1. Introduction

Education plays a crucial role in the development of a nation. As institutions responsible for providing education, schools play a central role in producing high-quality human resources (Aris et al., 2023; Tusriyanto et al., 2024). One inseparable aspect of improving educational quality is teacher performance. Optimal teacher performance significantly contributes to achieving educational goals, particularly in enhancing the quality of teaching and student learning outcomes. Education serves as a benchmark for contributing to the intellectual advancement of the nation by equipping students with the knowledge and skills necessary to succeed and participate in national development. The

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realization of quality education is strongly influenced by the role of school principals, who serve as the highest authority in school-based policy and as the driving force within the school system. As organizational leaders, school principals are fully responsible for the success and quality of all school components. One of their key responsibilities is improving teacher performance and ensuring its continuous development. Furthermore, principals are broadly accountable for the entire educational process, encompassing teacher development, infrastructure, and other educational resources. Given the magnitude of these responsibilities, principals must possess strong leadership qualities and a sound personality to effectively lead and support the school's human resources, particularly teachers, whose performance is essential and must be maintained and enhanced (Ndoen & Manurung, 2021).

The school principal's leadership is a key factor in the success and sustainable development of a school's culture, and their demeanor should reinforce this role. The emergence of an effective school principal depends on factors such as authority, personality traits, skills, behavior, and flexibility. School leadership empowers all human resources within the school, especially by fostering a school culture aligned with institutional goals. A school principal must be a professionally capable individual, possessing personality, experience, skills, training, or knowledge. The principal is responsible for cultivating a strong school culture, as a solid cultural legacy supports the achievement of the school's objectives. The principal and school culture are integral in clarifying the school's goals, mission, and values; forming a unique identity based on mutual trust and organizational connectedness; and fostering a shared commitment among teachers, students, and the community (Yunus et al., 2021).

Apart from the school principal, another key player in determining educational quality is the teacher. Teachers play a critical role, particularly concerning student achievement. As the determining factor of educational quality, teachers occupy a strategic position. Therefore, efforts to improve education quality must prioritize both the quantity and quality of teachers. Quality is often reflected in teacher performance (Safi'i, 2023). Teacher performance refers to the instructional process aimed at enhancing existing educational activities, thereby achieving predetermined educational goals through teaching and learning activities carried out by teachers under set targets and objectives (Kuku et al., 2023).

MI Ma'arif NU 01 Dawuhan Wetan, as one of the Islamic educational institutions located in a rural area, faces its own unique challenges in improving the quality of education. Therefore, it is essential to examine the extent to which the principal's management influences teacher performance at the madrasah. This study aims to analyze the influence of principal management on teacher performance at MI Ma'arif NU 01 Dawuhan Wetan. Based on this premise, research is necessary to determine the extent to which the principal's management affects teacher performance. It is expected that the findings of this study will provide deeper insights into the factors affecting teacher performance and offer recommendations for schools to enhance educational quality.

This study is limited to analyzing the influence of principal management on teacher performance at MI Ma'arif NU 01 Dawuhan Wetan. The main focus of this research is to address two key questions: how the principal's management influences teacher performance, and whether there is a statistically significant effect of principal management on teacher performance at the madrasah. The objective of this study is to gain an in-depth understanding of the influence of principal management on teacher performance and to statistically test the significance of their relationship. The expected benefit of this research is to provide empirical information on the relationship between principal management and teacher performance, as well as to serve as a basis for improving the quality of educational management, particularly in the context of madrasahs in rural areas.

A hypothesis is a crucial component in research as it serves as a provisional answer to the research questions formulated. In the context of quantitative research, the hypothesis functions as a guide for data collection and analysis, and as the basis for statistical testing to draw valid conclusions. Hypothesis testing is not merely a formality but a methodological

obligation to assess whether the initial assumption holds empirical significance. This necessity arises because a hypothesis is inherently assumptive and cannot be confirmed as true until it is tested. In this study, the independent variable is principal management (X), while the dependent variable is teacher performance (Y). Based on the research questions, the null hypothesis (H_0) states that principal management has no influence on teacher performance, whereas the alternative hypothesis (H_1) states that it does.

The conceptual framework of this study is built on the assumption that effective principal management can create a conducive work environment, motivate teachers, and provide direction and support in carrying out educational tasks. A school principal who is capable of planning, organizing, directing, and evaluating teacher performance professionally is believed to enhance the quality of teacher performance (Hamka, 2023; Rostini et al., 2022; Basuni et al., 2025). Therefore, principal management is presumed to have a significant influence on teacher performance, both directly and indirectly, and partially and simultaneously. This conceptual framework underpins the development of the hypothesis and guides the data analysis in this study.

The urgency of this study lies in the need to understand the strategic role of principal management in improving teacher performance, particularly in madrasah settings in rural areas such as MI Ma'arif NU 01 Dawuhan Wetan. In the context of primary education, teacher performance is a crucial factor in determining the quality of instruction and student learning outcomes. However, in practice, many teachers continue to face challenges in carrying out their duties effectively, which may be due to weak school principal management.

Therefore, this research is essential to fill the empirical gap regarding the extent to which principal management contributes to teacher performance. The findings of this study are not only academically valuable but also offer practical insights for school principals, madrasah supervisors, and policymakers in designing educational quality improvement strategies based on managerial strengthening. Moreover, the urgency is reinforced by the need for madrasahs to build a professional and collaborative work culture to effectively address educational challenges in the modern era.

Despite the growing body of literature highlighting the importance of school leadership in improving educational quality, several important research gaps remain. First, most previous studies have focused on general educational institutions or urban schools, while empirical evidence from Islamic elementary schools in rural settings remains limited. Second, although principal leadership has frequently been examined, many studies emphasize leadership style or organizational climate rather than managerial functions, such as planning, organizing, supervising, and evaluating teachers, as determinants of teacher performance. Third, previous findings are largely descriptive or qualitative, leaving a shortage of quantitative evidence to statistically measure the magnitude of the relationship between principal management and teacher performance in rural Islamic educational institutions. Addressing these gaps is particularly important because rural madrasahs often operate under different organizational, managerial, and resource conditions compared with urban schools. The effectiveness of principal management in such contexts may therefore differ and requires empirical verification. Without context-specific evidence, educational policies and managerial improvement programs risk being developed based on assumptions that do not adequately reflect the realities faced by rural Islamic schools.

Accordingly, this study investigates the influence of principal management on teacher performance at MI Ma'arif NU 01 Dawuhan Wetan using an associative quantitative approach. Unlike previous studies, this research provides statistical evidence, using simple linear regression, on the extent to which principal management contributes to teacher performance in a rural madrasah context. By focusing on managerial functions rather than leadership style alone, this study offers a more comprehensive understanding of how school management practices influence teachers' professional performance.

The findings are expected to contribute both theoretically and practically. Theoretically, this study enriches the literature on educational management by extending empirical evidence regarding the relationship between principal management and teacher

performance in community-based Islamic elementary schools. In practice, the results may serve as a reference for school principals, madrasah supervisors, and educational policymakers in designing management improvement strategies to strengthen teacher professionalism and improve educational quality, particularly in rural madrasahs with characteristics similar to those of MI Ma'arif NU 01 Dawuhan Wetan.

2. Methods

2.1 Research design, population, data collection, and research instruments

This study employed an associative quantitative research design within a positivist paradigm to examine the relationship between principal management and teacher performance (Pardosi & Utari, 2021; Parveen et al., 2022; Hasibuan, 2022). The positivist approach emphasizes objective measurement, empirical observation, and hypothesis testing through statistical analysis. An associative design was selected because the study aims to determine the magnitude and direction of the influence of the independent variable (principal management) on the dependent variable (teacher performance). The research was conducted as a field study at MI Ma'arif NU 01 Dawuhan Wetan during the even semester of the 2024/2025 academic year. This design enables the collection of empirical data directly from respondents and facilitates objective analysis of the proposed relationship. The population consisted of all teachers at MI Ma'arif NU 01 Dawuhan Wetan. Since the teacher population is relatively homogeneous in terms of institutional characteristics and work environment, all teachers were included as research respondents to ensure comprehensive representation.

Data were collected using three complementary techniques: observation, questionnaires, and documentation. Observations were conducted to identify teachers' actual work behavior within the school environment. Structured questionnaires employing a five-point Likert scale (Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree) were distributed to measure teachers' perceptions of principal management and teacher performance. Documentation was used to obtain supporting information from school records and administrative documents. The research instrument consisted of two structured questionnaires. The first questionnaire measured principal management (Variable X), covering leadership, decision-making, supervision, work environment, and problem-solving aspects. The second questionnaire measured teacher performance (Variable Y), including teaching discipline, instructional implementation, administrative responsibilities, participation in school activities, and attention to students' learning progress. Each questionnaire comprised ten statements, including both positive and negative items, to minimize response bias.

Table 1. Principal management questionnaire (Variable X)

Statement
The principal provides clear guidance on implementing teachers' duties.
The principal involves teachers in school decision-making.
The principal regularly supervises teaching and learning activities.
The principal creates a conducive working environment for teachers.
The principal is able to solve problems that occur in the school.
The principal does not provide clear guidance on implementing teachers' duties.
The principal does not involve teachers in school decision-making.
The principal does not regularly supervise teaching and learning activities.
The principal does not create a conducive working environment for teachers.
The principal is unable to resolve problems that arise at the school.

The questionnaire for the independent variable, principal management (Variable X), was developed based on key managerial functions performed by school principals. The instrument was designed to measure teachers' perceptions of the principal's ability to provide direction, involve teachers in decision-making, conduct academic supervision, establish a supportive working environment, and resolve organizational problems. To reduce acquiescence bias, the questionnaire included both positively and negatively worded statements. Respondents rated each statement using a five-point Likert scale ranging from Strongly Agree (SA) to Strongly Disagree (SD). The indicators and questionnaire items are presented in Table 1.

The dependent variable, teacher performance (Variable Y), was measured with a separate questionnaire assessing teachers' professional responsibilities and instructional performance. The instrument covers several dimensions, including teaching discipline, instructional implementation, administrative responsibilities, participation in school activities, and attention to students' learning progress. Similar to the principal management instrument, both positive and negative statements were included to improve response accuracy and minimize systematic response bias. The complete list of questionnaire items is presented in Table 2.

Table 2. Teacher performance questionnaire (Variable Y)

Statement
I am present and teach according to the predetermined schedule.
I conduct the teaching and learning process effectively and efficiently.
I prepare complete and timely teaching administration.
I actively participate in school activities outside teaching hours.
I pay attention to students' learning progress.
I am not present and do not teach according to the predetermined schedule.
I do not conduct the teaching and learning process effectively and efficiently.
I do not prepare complete and timely teaching administration.
I am not actively involved in school activities outside teaching hours.
I do not pay attention to students' learning progress.

All questionnaire items for both variables were measured using a five-point Likert scale consisting of Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), and Strongly Disagree (SD). For positively worded statements, responses were scored from 5 (Strongly Agree) to 1 (Strongly Disagree). Conversely, negatively worded statements were reverse-coded, with 1 assigned to Strongly Agree and 5 assigned to Strongly Disagree. This reverse scoring was applied to ensure that higher total scores consistently reflected more positive perceptions of principal management and higher levels of teacher performance. The use of both positively and negatively worded items was intended to reduce acquiescence bias and improve the overall reliability and validity of the measurement instrument.

2.2 Instrument validity and reliability

Before conducting the main analysis, the research instruments were evaluated through validity and reliability testing to ensure measurement accuracy and consistency. Construct validity was examined using Pearson's product-moment correlation by comparing the calculated correlation coefficient (r-count) with the critical value (r-table) (Alfiyah et al., 2025; Siregar et al., 2024). Questionnaire items with r-count values exceeding the r-table were considered valid and retained for further analysis. Instrument reliability was subsequently assessed using Cronbach's Alpha coefficient to determine the internal consistency of each measurement scale. A Cronbach's Alpha value of at least 0.70 indicates satisfactory reliability and demonstrates that the instrument consistently measures the intended constructs. These procedures ensured that the collected data were appropriate for subsequent statistical analyses.

2.3 Data analysis

The data analysis was conducted using descriptive and inferential statistical techniques. Descriptive statistics were first used to summarize respondents' characteristics and the distributions of the research variables. Subsequently, assumption testing was performed, including the normality test and linearity test. The normality test was used to assess whether the data were normally distributed, and the linearity test examined whether the relationship between principal management and teacher performance was linear; both were prerequisites for parametric analysis. After satisfying the statistical assumptions, simple linear regression analysis was applied to examine the effect of principal management (X) on teacher performance (Y). The regression model is expressed as $\hat{Y} = a + bX$, where a represents the regression constant and b denotes the regression coefficient indicating the magnitude and direction of the influence of principal management on teacher performance. Statistical significance was evaluated at the 5% significance level ($\alpha = 0,05$) using the t-test for regression coefficients and the coefficient of determination (R^2) to assess the proportion of variance in teacher performance explained by principal management.

3. Results and Discussion

3.1 Results

3.1.1 Results of validity and reliability testing for instruments of variable X and variable Y

Before conducting the main statistical analysis, the research instruments were evaluated to ensure that they met the required standards of validity and reliability. Instrument testing is an essential step in quantitative research because it determines whether each questionnaire item accurately measures the intended construct and produces consistent results. A valid and reliable instrument increases the credibility of the findings and minimizes measurement error. The validity test for the Principal Management (Variable X) instrument was performed using the Pearson Product-Moment correlation by comparing the calculated correlation coefficient (r-count) with the critical correlation value (r-table). Questionnaire items with r-count values greater than the r-table value were considered valid and retained for further statistical analysis. The detailed results of the validity test are presented in Table 3.

Table 3. Validity test results for the instrument of variable X (principal management)

Statement	r-count	r-table	Remarks
Statement 1	0.680	0.351	Valid
Statement 2	0.701	0.351	Valid
Statement 3	0.749	0.351	Valid
Statement 4	0.890	0.351	Valid
Statement 5	0.749	0.351	Valid
Statement 6	0.468	0.351	Valid
Statement 7	0.687	0.351	Valid
Statement 8	0.691	0.351	Valid
Statement 9	0.746	0.351	Valid
Statement 10	0.507	0.351	Valid

Based on the results presented in Table 3, all ten questionnaire items measuring principal management obtained r-count values ranging from 0.468 to 0.890, all of which exceeded the critical r-table value of 0.351 ($df = 21, \alpha = 0.05$). These results indicate that every questionnaire item is statistically valid and accurately measures the intended construct of principal management. Consequently, all items satisfied the validity criterion ($r\text{-count} > r\text{-table}$) and were retained for subsequent reliability testing and inferential statistical analyses. The findings confirm that the instrument possesses adequate construct validity and is appropriate for measuring the principal management variable in this study.

Table 4. Reliability test results of the instrument for variable X

Cronbach's Alpha	N of items
0.872	10

The reliability test aims to measure the extent to which an instrument can produce consistent results when used to assess a particular variable. In this study, the variable in question is Principal Management. Based on the analysis, the Cronbach's alpha was 0.872 across 10 items. This value indicates a high level of internal consistency of the instrument used. With a value of 0.872, the instrument falls into the high or good reliability category, indicating that the items consistently measure aspects of principal management. Therefore, the instrument used to measure the Principal Management variable (Variable X) demonstrates high reliability and is considered suitable for further research, as it meets the statistical reliability criteria.

Table 5. Item total statistic results

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
S01	40.5652	17.530	0.612	0.860
S02	40.3043	17.767	0.644	0.860
S03	40.4348	16.802	0.683	0.854
S04	40.8261	13.968	0.834	0.837
S05	40.4348	16.802	0.683	0.854
S06	40.4783	18.261	0.357	0.876
S07	40.5652	17.075	0.608	0.859
S08	40.6522	15.874	0.573	0.864
S09	40.6957	15.494	0.645	0.856
S10	40.4348	18.075	0.402	0.873

Based on the Item-Total Statistics presented in Table 5, all questionnaire items for the Principal Management variable demonstrated satisfactory corrected item-total correlation values, ranging from 0,357 to 0,834. These values exceed the commonly accepted minimum threshold of 0,30, indicating that each item contributes positively to the measurement of the overall construct. Furthermore, the Cronbach's Alpha if Item Deleted values remained consistently below the overall Cronbach's Alpha coefficient, suggesting that removing any individual item would not improve the instrument's internal consistency.

These findings confirm that the Principal Management questionnaire possesses strong internal consistency and that all ten items are appropriate for measuring the intended construct. Having established the validity and reliability of Variable X, the next stage was to evaluate the psychometric properties of the Teacher Performance instrument (Variable Y). The results of the validity test for Variable Y are presented in Table 6.

Table 6. Validity test results for the instrument of variable Y

Statement	r-count	r-table	Remarks
Statement 1	0.491	0.351	Valid
Statement 2	0.468	0.351	Valid
Statement 3	0.796	0.351	Valid
Statement 4	0.766	0.351	Valid
Statement 5	0.796	0.351	Valid
Statement 6	0.661	0.351	Valid
Statement 7	0.891	0.351	Valid
Statement 8	0.661	0.351	Valid
Statement 9	0.821	0.351	Valid
Statement 10	0.880	0.351	Valid

Based on the results presented in Table 6, all ten questionnaire items measuring teacher performance obtained r-count values ranging from 0.468 to 0.891, exceeding the critical r-table value of 0.351. These findings indicate that every questionnaire item satisfies

the validity criterion and accurately represents the dimensions of teacher performance measured in this study. Consequently, all questionnaire items were considered suitable for subsequent statistical analyses without requiring item elimination.

The consistently high correlation coefficients also demonstrate that each statement contributes meaningfully to the overall measurement of teacher performance. This provides evidence that the instrument has adequate construct validity and can reliably capture respondents' perceptions regarding their professional responsibilities and instructional performance. Following confirmation of the instrument's validity, the reliability of the Teacher Performance Questionnaire was evaluated using Cronbach's Alpha. The results of the reliability analysis are presented in Table 7.

Table 7. Reliability test results of the instrument for variable Y

Cronbach's Alpha	N of Items
0.895	10

As shown in Table 7, the Teacher Performance instrument achieved a Cronbach's Alpha coefficient of 0.895, indicating excellent internal consistency. Since the obtained value exceeds the commonly accepted threshold of 0.70, the questionnaire can be considered highly reliable for measuring teacher performance. These findings confirm that the instrument consistently measures the intended construct and is appropriate for subsequent statistical analyses. To further evaluate the contribution of each questionnaire item to the scale's overall reliability, an Item-Total Statistics analysis was conducted. This analysis examines the corrected item-total correlation of each statement and the effect of deleting an item on the overall Cronbach's Alpha coefficient. The detailed results are presented in Table 8.

Table 8. Item total statistic results

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
S01	40.6957	18.676	0.398	0.898
S02	40.4348	18.984	0.386	0.898
S03	40.6087	16.340	0.731	0.878
S04	41.2174	15.632	0.672	0.884
S05	40.6087	16.340	0.731	0.878
S06	40.5652	17.530	0.579	0.888
S07	40.4348	17.257	0.868	0.876
S08	40.5652	17.530	0.579	0.888
S09	40.9565	14.771	0.737	0.880
S10	40.4783	16.534	0.847	0.872

Based on the results presented in Table 8, all questionnaire items produced corrected item-total correlation values above the recommended minimum threshold of 0.30, ranging from 0.386 to 0.868. Furthermore, the Cronbach's Alpha if Item Deleted values remained below the overall Cronbach's Alpha coefficient (0.895), indicating that removing any individual item would not improve the instrument's reliability. Therefore, all ten items were retained, confirming that each statement contributes positively to measuring the Teacher Performance construct and supports the questionnaire's overall internal consistency.

3.1.2 Results of normality and linearity tests

Before testing the research hypothesis through simple linear regression, the data were subjected to assumption testing to ensure that the statistical requirements for parametric analysis were satisfied. Verifying these assumptions is essential because the accuracy and validity of regression estimates depend on whether the underlying distributional and relational assumptions are satisfied. In this study, assumption testing consisted of normality and linearity analyses, which were performed sequentially. The normality test assessed

whether the residuals were normally distributed, while the linearity test evaluated whether the relationship between principal management and teacher performance could be adequately represented by a linear regression model. Satisfying both assumptions ensures that the regression coefficients and significance tests provide reliable and unbiased estimates of the relationship between the study variables (Sianturi, 2025).

Assumption testing also strengthens the robustness of the subsequent inferential analysis. If the data meet both normality and linearity assumptions, the simple linear regression model can be applied with greater confidence, allowing the estimated relationship between principal management and teacher performance to be interpreted accurately. Therefore, the results of these preliminary analyses constitute an important basis for determining the suitability of the regression model used in this study. The results of the normality test are presented in Table 9.

Table 9. Results of the normality test (one-sample Kolmogorov-Smirnov test)

		Unstandardized Residual
N		23
Normal Parameters ^{a,b}	Mean	0.0000000
	Std. Deviation	1.98465869
Most Extreme Differences	Absolute	0.124
	Positive	0.124
	Negative	-0.105
Test Statistic		0.124
Asymp. Sig. (2-tailed)		0.200 ^{c,d}

Based on the results presented in Table 9, the Kolmogorov-Smirnov test produced an Asymp. Sig. (2-tailed) value of 0.200, which is greater than the significance level of 0.05. This finding indicates that the residuals are normally distributed and that the regression model satisfies the normality assumption. Consequently, the data are considered appropriate for subsequent parametric analyses, including simple linear regression. Following confirmation of the normality assumption, the linearity test was conducted to assess whether the relationship between principal management and teacher performance could be adequately explained by a linear regression model. The results of the linearity analysis are presented in Table 10.

Table 10. Results of linearity (ANOVA test)

			Sum of Squares	df	Mean Square	F	Sig.
Teacher Performance * Principal Management	Between Groups	(Combined)	414.204	9	46.023	14.557	0.000
		Linearity	368.649	1	368.649	116.604	0.000
		Deviation from Linearity	45.555	8	5.694	1.801	0.166
	Within Groups		41.100	13	3.162		
	Total		455.304	22			

Based on the results presented in Table 10, the significance value for Deviation from Linearity is 0.166, which exceeds the significance threshold of 0.05. This finding indicates that there is no statistically significant deviation from linearity between principal management and teacher performance. In addition, the significance value for the Linearity component is 0.000, demonstrating that a significant linear relationship exists between the two variables. These results confirm that the assumption of linearity has been satisfied, indicating that the relationship between principal management and teacher performance can be appropriately represented using a simple linear regression model. Consequently, the regression analysis can be performed without violating one of the fundamental assumptions of parametric analysis. The fulfillment of this assumption also strengthens the validity of the subsequent hypothesis testing and supports the interpretation that changes in principal management are associated with proportional changes in teacher performance.

3.1.3 Simple linear regression analysis test

After confirming that the research data satisfied the assumptions of normality and linearity, a simple linear regression analysis was conducted to examine the influence of principal management on teacher performance. This analysis was employed to determine whether principal management significantly predicts variations in teacher performance and to quantify the strength of this relationship. The regression model also provides an overall assessment of whether it is statistically appropriate for explaining changes in the dependent variable. The analysis was performed using SPSS statistical software based on questionnaire responses collected from all respondents. The results of the regression ANOVA are presented in Table 11.

Table 11. ANOVA results of the simple linear regression test

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	368.649	1	368.649	89.338	0.000 ^b
	Residual	86.655	21	4.126		
	Total	455.304	22			

a. Dependent variable: Teacher Performance

b. Predictors: (Constant), Principal Management

The ANOVA results presented in Table 11 indicate that the regression model is statistically significant, as evidenced by a significance (Sig.) value of 0.000, well below the 0.05 threshold. This finding demonstrates that the regression model provides a significantly better explanation of teacher performance than a model without predictor variables. Furthermore, the F-value of 89.338 indicates that principal management has substantial explanatory power in predicting teacher performance. The relatively large regression sum of squares (368.649), compared with the residual sum of squares (8.655), further suggests that a considerable proportion of the variation in teacher performance is explained by principal management, while the remaining unexplained variation may be attributed to other factors outside the scope of this study.

Overall, these findings confirm that the regression model is appropriate for examining the relationship between principal management and teacher performance. The statistical significance of the model supports the proposed research hypothesis, indicating that improvements in principal management are associated with significant improvements in teacher performance at MI Ma'arif NU 01 Dawuhan Wetan. Following confirmation of the overall model significance, the explanatory power of the regression model was further evaluated using the Model Summary analysis, as presented in Table 12.

Table 12. Results of model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.900 ^a	0.810	0.801	2.031

a. Predictors: (Constant), Principal Management

The Model Summary results provide strong evidence that principal management explains a substantial proportion of the variation in teacher performance. However, although the coefficient of determination indicates how well the regression model fits the observed data, it does not explain the specific nature of the relationship between the independent and dependent variables. Therefore, further analysis of the regression coefficients is required to determine whether the influence of principal management is positive or negative, to estimate the magnitude of its effect, and to assess the statistical significance of the predictor variable. This stage of the analysis provides a more detailed understanding of how changes in principal management are associated with changes in teacher performance.

The regression coefficient analysis also serves as the basis for testing the proposed research hypothesis. In addition to estimating the regression equation, this analysis

evaluates whether the observed relationship between principal management and teacher performance is statistically meaningful. The coefficient values indicate the expected change in teacher performance resulting from changes in principal management, while the corresponding t-test and significance values determine whether these changes are statistically significant rather than due to chance. Consequently, the regression coefficient analysis provides direct empirical evidence regarding the strength, direction, and significance of the influence of principal management on teacher performance. The detailed results of the regression coefficient analysis are presented in Table 13.

Table 13. Results of the Coefficient Test

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	4.357	4.339		1.004	0.327
Principal Management	0.906	0.096	0.900	9.452	0.000

^a. Dependent Variable: Teacher Performance

Based on the regression coefficients presented in Table 13, the estimated regression equation is expressed as:

$$Y = 4.357 + 0.906X \quad (\text{Eq. 1})$$

The regression equation indicates that the constant term is 4.357, representing the estimated level of teacher performance when the principal management variable is set to zero. More importantly, the regression coefficient of 0.906 demonstrates a positive relationship between principal management and teacher performance. This coefficient indicates that every one-unit improvement in principal management is associated with an increase of approximately 0,906 units in teacher performance, assuming other factors remain constant. The positive coefficient confirms that improvements in managerial practices are consistently followed by improvements in teachers' professional performance.

The significance of the regression coefficient is further supported by the t-test results. The calculated t-value of 9.452 is substantially higher than the critical t-value of 1.724, while the significance value is 0.000, which is considerably lower than the established significance level of 0.05. These findings demonstrate that principal management has a statistically significant influence on teacher performance. Consequently, the null hypothesis (H_0), which states that principal management has no effect on teacher performance, is rejected, whereas the alternative hypothesis (H_1) is accepted. This result provides strong empirical evidence that effective principal management plays a decisive role in improving teacher performance at MI Ma'arif NU 01 Dawuhan Wetan and confirms the suitability of the proposed regression model for explaining the observed relationship between the two variables.

3.2 Discussion

The primary objective of this study was to examine the influence of principal management on teacher performance at MI Ma'arif NU 01 Dawuhan Wetan. The discussion presented in this section interprets the empirical findings obtained from the regression analysis in relation to previous empirical studies and established educational management theories. Rather than merely reporting statistical outcomes, this discussion explains how effective principal management improves teacher performance and highlights the theoretical and practical significance of these findings in the context of community-based Islamic primary education.

The results of the study indicate that principal management has a positive and significant influence on teacher performance. This finding is supported by the simple linear regression analysis, which yielded a significance value of 0.000, well below the critical

threshold of $\alpha = 0.05$, and an F-value of 89,338, indicating the strong predictive power of the regression model. Furthermore, the t-test results show a calculated t-value of 9.452, which exceeds the critical t-value of 1.724, with a significance level of 0.000. In addition, the coefficient of determination ($R^2 = 0.810$) indicates that principal management explains approximately 81% of the variation in teacher performance, suggesting that managerial practices are among the dominant factors affecting teachers' professional performance. These findings confirm the rejection of the null hypothesis (H_0) and the acceptance of the alternative hypothesis (H_1), providing strong empirical evidence that improvements in principal management are consistently associated with improvements in teacher performance.

These empirical findings reinforce Norniati's (2023) argument that the success of an educational institution is largely determined by the effectiveness of principals in performing managerial functions, including planning, organizing, supervising, coordinating, and developing teachers. The significant relationship identified in this study suggests that principals who implement effective managerial practices are better able to establish structured work systems, monitor instructional quality, and facilitate continuous professional improvement among teachers. Consequently, managerial competence should be regarded not merely as an administrative obligation but as a strategic mechanism for enhancing teacher effectiveness and overall school performance.

The findings are also consistent with educational management theory, which emphasizes the integration of managerial functions into school leadership. Edy et al. (2024) explain that effective educational management requires the systematic implementation of the POAC functions—Planning, Organizing, Actuating, and Controlling—to achieve institutional objectives efficiently. Similarly, Yulianto et al. (2023) argue that principal management extends beyond routine administrative responsibilities by encompassing strategic planning, resource mobilization, coordination, and the development of a conducive organizational climate. The present findings support these theoretical perspectives by demonstrating that principals who consistently implement these managerial functions create conditions that enable teachers to perform their professional responsibilities more effectively.

The results further corroborate previous empirical studies examining the relationship between principal management and teacher performance. Widiyanti et al. (2024) reported that principal leadership significantly enhances teacher motivation, instructional planning, and classroom management. Likewise, Mulyono et al. (2023) found that regular academic supervision by school principals substantially strengthens teachers' work ethic and instructional quality. These findings are also compatible with the school management perspective proposed by Suchyadi et al. (2022), which emphasizes that effective principals should apply managerial principles through appropriate task allocation, innovation, and effective communication. The consistency between the present findings and previous studies strengthens the empirical evidence that effective principal management remains an important determinant of teacher performance across different educational settings.

Beyond improving individual teacher performance, principal management also contributes to the development of a positive organizational culture within the school. According to Yunus et al. (2021) and Lestari et al. (2024), principals play a central role in establishing collaborative work environments characterized by shared values, mutual trust, and open communication. The present findings demonstrate that principals who encourage participatory decision-making, provide continuous supervision, and maintain supportive professional relationships are more likely to foster teachers' commitment and accountability. Such managerial practices not only improve instructional performance but also encourage collaboration among teachers, facilitate knowledge sharing, and strengthen the school's capacity to respond to educational challenges.

An important practical implication of these findings is that principal management should be positioned as a strategic intervention for improving educational quality rather than merely fulfilling administrative responsibilities (Riani & Ain, 2022; Ibrahim et al., 2024). Effective management enables principals to establish clear performance

expectations, monitor instructional implementation, provide constructive feedback, and facilitate continuous professional development. When teachers receive systematic managerial support, they become more committed to their professional responsibilities and demonstrate greater effectiveness in planning, implementing, and evaluating learning activities. Consequently, strengthening principals' managerial competencies through leadership development programs and continuous professional training may represent an effective policy for improving teacher performance, particularly within rural Islamic primary schools (Halima et al., 2025; Mu'alimin et al., 2026; Ani et al., 2025).

From a theoretical perspective, this study provides additional empirical evidence for educational management theories emphasizing the interdependence between managerial competence and teacher effectiveness. While previous studies have generally focused on leadership style or organizational climate, this study specifically demonstrates that managerial functions themselves constitute significant predictors of teacher performance. Furthermore, by examining a community-based rural madrasah, this research extends the applicability of educational management theory beyond urban educational institutions, thereby enriching the existing literature on educational leadership in Islamic primary education (Shopiana, 2025). Although the present findings provide strong empirical evidence regarding the importance of principal management in improving teacher performance, they should be interpreted in light of several methodological considerations. As with many quantitative studies conducted in a single educational institution, the scope of the findings is influenced by the characteristics of the research setting and respondents (Kittur, 2023). Recognizing these limitations is important for ensuring balanced interpretation and identifying opportunities for future investigation. Despite the significant findings, this study has several limitations that should be considered when interpreting the results. The research was conducted at a single educational institution with a relatively small number of respondents, which may limit the generalizability of the findings to other schools or regions. In addition, teacher performance was measured primarily through questionnaire responses, making the data susceptible to subjective perceptions and response bias. Future studies may strengthen the evidence by involving larger samples, multiple schools, and complementary assessment methods such as classroom observations or structured performance evaluations.

Future research is also encouraged to examine additional variables that may mediate or moderate the relationship between principal management and teacher performance. Factors such as organizational commitment, teacher motivation, job satisfaction, school climate, and professional development programs may provide a more comprehensive explanation of how managerial practices influence teacher effectiveness. Employing longitudinal or mixed-method research designs would further enrich the understanding of these relationships by capturing changes over time and providing deeper qualitative insights. Such approaches would contribute to the development of more evidence-based educational management policies to improve teaching quality and institutional performance. Overall, the findings consistently demonstrate that effective principal management constitutes a fundamental determinant of teacher performance within the investigated madrasah. Through systematic planning, effective organization, continuous supervision, participatory leadership, and supportive management practices, principals create conditions that enable teachers to perform more professionally and effectively. These findings not only reinforce existing educational management theories but also provide practical evidence that strengthening principals' managerial competencies represents an essential strategy for improving educational quality, particularly in community-based rural Islamic primary schools.

4. Conclusions

Based on the results of the quantitative analysis using simple linear regression, it can be concluded that principal management has a positive and significant influence on teacher performance at MI Ma'arif NU 01 Dawuhan Wetan. This is evidenced by the validity test, in

which all items in the principal management instrument (variable X) and the teacher performance instrument (variable Y) were found to be valid, as the calculated r-values exceeded the critical r-table values. This indicates that all questionnaire items accurately measure the intended variables. In addition, the results of the simple regression analysis show a significance value (Sig.) of 0,000, which is less than 0,05, indicating that the regression model is statistically significant. The calculated t-value (t_h) of 9,452, which exceeds the t-table value of 1,724, along with a significance level well below the critical threshold (0.05), further confirms that principal management has a real and measurable effect on teacher performance. Thus, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted.

Furthermore, the F-value of 89,338 in the ANOVA analysis indicates that the regression model has a very strong predictive ability regarding teacher performance. Of the total variation in the data (455,304), 368,649 (regression) is attributed to the influence of principal management, while the remaining 86,655 (residual) is due to other factors not included in the model. This reinforces the conclusion that principal management is a dominant variable affecting teacher performance. These findings affirm that the role of the principal at MI Ma'arif NU 01 Dawuhan Wetan extends beyond administrative duties and is a strategic factor in shaping the school's culture, enhancing teacher professionalism, ensuring effective supervision, and fostering communication among staff. The more effective and high-quality the principal's management, the greater the teachers' work motivation, sense of responsibility, and job performance.

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Author Contribution

All authors contributed to the conception and design of the study, data collection, data analysis, and manuscript preparation. Each author was involved in drafting and critically revising the manuscript and approved the final version for publication. All authors agree to be accountable for all aspects of the work.

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